Remarks

Claims 1-32 are pending in the application. Claims 7-9, 13, 14, and 26-32 are withdrawn from consideration. Claims 1-6, 10-12 and 15-25 stand rejected.

(a) The term "diethylamine salicylate" was objected to and a suggestion made to replace the term with "diethylamine salicylic acid" in Claims 1 and 15.

(b) For clarity, the suggestion was made to include a comma between the words "bionic acids" and "alanine" in claim 17.

(c) Claim 17 was rejected under 35 U.S.C. §112, second paragraph, for lack of sufficient antecedent basis.

(d) Claims 1-5, 10-12, 14, 17-18, 20-22, and 25 stand rejected under 35 U.S.C. §103(a) as being unpatentable over WO 91/13552 to Tate in view of U.S. Patent No. 5,366,995 to Savage et al.

(e) Claims 1-6, 10-12, and 15-25 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,246,716 to Sedum et al. and U.S. Patent No. 5,366,995 to Savage et al. in combination , and further in view of U.S. Patent No. 5,741,502 to Roberts, J.R.

(a) Objection to the term "diethylamine salicylate" in Claims 1 and 15 resolved

Claims 1 and 15 have been amended, replacing the term "diethylamine salicylate" with "diethylamine salicylic acid" as suggested by the Office Action.

(b) Objection to the lack of a comma between the terms "bionic acids" and "alanine" in Claim 15 resolved

Claim 15 has been amended to include a comma between the terms "bionic acids" and "alanine" as suggested by the Office Action.

(c) Lack of sufficient antecedent basis in Claim 17 corrected

Claim 17 has been amended to include the word "further" prior to the word "comprising" as suggested by the Office Action.

(d) The combination of WO 91/13552 to Tate in view of U.S. Patent No. 5,366,995 to Savage et al. is improper and fails to support a prima facie case of obviousness under 35 U.S.C. §103(a)

(i) The arguments provided in rejecting Claims 1-5, 10-12, 14, 17-18, 20-22, and 25 under 35 U.S.C. §103(a) as being unpatentable over WO 91/13552 to Tate in view of U.S. Patent No. 5,366,995 to Savage fail to establish a prima facie case of obviousness.

The Office Action finds applicant's fungicidal composition comprises the elements: a) a fatty acid;
b) an organic carboxylic acid; c) a carrier; and d) an emulsifier. In reviewing the cited references, the Office Action finds elements (a) – (c) disclosed in Tate. However, the Office Action finds that Tate does not disclose "at least one emulsifier." The Office Action further finds that Savage et al. teach a fungicidal composition including the elements: (a) a fatty acid; and (d) an emulsifier. Therefore the Office Action finds that one of ordinary skill would have been motivated to incorporate Savage's emulsifier into Tate's composition. Motivation for making the combination is unclear, but according to the Office Action "…if an emulsion form of the composition is desired..," it apparently "…would have had a reasonable expectation of success." (See Office Action, last part of page 13 through first part of page 14). As a result of these findings, the Office Action concludes that applicant's invention would be prima facie obvious for one skilled in the art at the time the invention was made.

The Office Action's consideration of Tate and Savage involve little more than finding the words "fungicide" in both references and then locating each of the elements of applicant's claimed invention in one or the other reference. The actual teachings of the two cited references, discussed in Applicant's Office Action replies have not been fully considered in the Office Action.

Tate specifically teaches the following:

- "A fungicidal composition for application to plants which compromises a fungicide together with at least one substance that produces a positive chemotactic response from myco-pathogens." (See Tate, Claim 1)
- The substance producing the chemotactic response is described as "Nitrogen containing compounds and/or acids such as 'fruit' acids, and sugars, and their derivatives…" useful "…as sources of cellular materials and energy." The chemotactic compounds "…are stimulants encouraging the microflora to germinate and forage." (See Tate, page 4)
- "In this way the fungicide formulations of the present invention, by incorporating microbial foodstuffs, specific compounds used as food sources for respiration as

discussed above, will control fungal infections by encouraging spore germination and foraging." (See Tate, page 6)

- "The new fungicidal compositions of the invention aim to destroy the germinating aeciospores and motile pre-haustoria prior to the development of the appressoria." (See Tate, page 9)

The fungicide identified in claim 1 and Tate's specification is Copper and the chemotactic compounds can include a fatty acid, a carboxylic acid, or a combination thereof. Tate does not teach a fungicide utilizing only a chemotactic compound (i.e. without copper). According to Tate, a fatty acid, a carboxylic acid or a combination thereof function as "microbial foodstuffs" thereby "encouraging spore germination and foraging" by the microorganism. Tate teaches that fatty acids, carboxylic acids, or combinations thereof, without the inclusion of copper or another fungicide, encourage fungal development and growth. Tate's formulation, including Cu, has preventative properties, destroying "…the germinating aeciospores and motile pre-haustoria prior to the development of the appressoria."

Savage et al. teaches the following:

- "Specifically exemplified herein are saturated and mono-unsaturated fatty acids of length C9 and C18 respectively. The use of the compositions described here, when used in the proportions and application rates set forth more fully hereinafter, results in an unexpected control of established fungal infections. The lack of preventive activity of these compositions makes this discovery highly unexpected. This invention demonstrates that the same fatty acids which lack preventive activity for disease control exhibit advantageous curative control. This activity is most advantageous over a range of concentrations between low doses which are ineffective and higher doses which are phytotoxic to the host plant. This critical range varies with the form of the acid (free acid, salt, formulation) and the host/pathogen system under consideration, but can be determined by a person skilled in this art using the teachings of the subject invention." (See Savage et al. at Col. 3, lines 49-59) *Emphasis added*

- "The fatty acids of the subject invention, and their salts and derivatives, have unexpected utility for the eradication of plant pathogens after these pathogens have already infected their host. The methods of the subject invention result in a curative activity which is highly valuable in plant disease management." (See Savage et al. at Col. 4, lines 1-7) *Emphasis added*

- "Disease control is not observed if the fatty acids are applied at the same time the fungus is inoculated or prior to that inoculation. Similarly, applications of 2% M-PEDE.TM. (mainly salts of c18 fatty acids) or 0.5% pelargonic acid can dramatically reduce further sporulation when applied to plants which are already severely infected with powdery mildew pathogens (Example 5). Again, application of the same fatty acids to the plants prior to infection (preventative) are ineffective." (See Savage et al. Col. 8, lines 25-34) *Emphasis added*

The proposed combination of Tate modified with Savage et al. is improper in view of MPEP 2143.02 requiring a reasonable expectation of success; in view of MPEP 2143.01 VI, restricting the proposed modification from changing the principle of operation of a reference; MPEP 2143.01 II, requiring the Examiner to weigh the suggestive power of each reference where a conflict exists between the teaching of the prior art references; and MPEP 2141.02 VI requiring consideration of the prior art in its entirety, including disclosures that teach away from applicant's claims.

- The KSR decision cited in MPEP 2143.02 states:

  A rationale to support a conclusion that a claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods **with no change in their respective functions**, and **the combination would have yielded nothing more than predictable results to one of ordinary skill in the art**. *Emphasis added*

The Office Action has provided no reasoning that suggests Applicant's combination (lacking copper) would have yielded nothing more than predictable results with no change in the respective function of the composition's components. Clearly, the addition of Savage's emulsifier to Tate's fungal food would not have been expected at the time of applicant's invention to change the fungal food into a fungicide, nor would removal of a fungicide (Cu) from Tate's antifungal composition have been expected to provide applicant's improved fungicide. The improved fungicidal properties obtained with Applicant's composition are simply not predictable based on the cited prior art.

- MPEP 2143.01, VI states that if "…the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified,

then the teachings of the references are not sufficient to render the claims *prima facie* obvious," Emphasis *added.*

The proposed modification of Tate by Savage et al. **(**regardless of whether copper is maintained or excluded**)**, changes the principle of the Tate invention in two ways.

First, the Tate reference teaches that the combination of copper and the chemotactic compounds (fatty acid and/or carboxylic acid) encourages spore germination (See Tate at page 6) and destroys the germinating spores before infection of the plant (see Tate at page 9). Savage et al., however, teaches that the combination of a fatty acid and an emulsifier reduces sporulation or spore formation (See Savage et al. at Col. 8, lines 25-34) and prevents spore germination (See Savage et al., Table 1 at Col. 10, lines 35-52). The proposed combination involving Tate (encouraging spore germination) with Savage et al. (preventing spore germination and sporulation) would change the principle of operation of the Tate reference, a result prohibited by MPEP2143.01, VI.

Second, the Tate reference teaches a fungicide for application prior to infection, in which the fungicide (Cu) is compounded with chemotactic compounds (fatty acid and/or carboxylic acid) having protective or preventative properties that"… destroy the germinating aeciospores and motile pre-haustoria prior to the development of the appressoria." The Tate fungicide protects an uninfected plant in contact with fungal spores from becoming infected (See Tate, page 9, cited above). Savage et al. on the other hand, teaches a combination of a fatty acid and an emulsifier that exhibit only curative control after a plant has become infected with a fungus (See Savage et al., Col. 3, lines 51-59; Col. 4, lines 1-7; and Col. 9, lines 24-33, all cited above). Savage et al. specifically teach that the fatty acid/emulsifier combination lack any preventative properties and state that the combination is ineffective as a fungal preventative applied prior to an actual infection (See Savage , Col 8, lines 25-34, cited above). Thus the combination of Tate (having preventative properties, and lacking curative properties) modified by Savage et al. (having only curative properties and lacking preventative properties) would change the principle of the Tate reference, a result prohibited by MPEP2143.01, VI.

- MPEP 2143.01 II states:

> The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art, and all teachings in the prior art must be considered to the extent that they are in analogous arts. **Where the teachings of two or more prior art references conflict, the examiner must weigh the power of each reference to suggest solutions to one of ordinary skill in the art,**

considering the degree to which one reference might accurately discredit another. *Emphasis added*

The chemotactic component of the Tate fungicide (regardless of whether copper is present) is reported to cause spore germination and enhance growth of the fungus prior to plant infection (See Tate, page 4, page 6, and page 9, all cited above). In contrast, Savage et al. teaches that an emulsion of a fatty acid or a potassium salt of the fatty acid inhibits spore germination (See Savage et al., Table 1, Col 10, lines 35-52, cited above). The teaching of the two references conflict with regard to the issue of how spore germination is effected, a step that is critical to fungal control. The Office Action has not weighed the power of each reference, suggesting what the combination would suggest to one skilled in the art or which of the references discredits the other. More specifically, it is unclear whether the proposed combination would be expected to facilitate and encourage spore germination, prevent spore germination, or whether the two effects would cancel the respective effects causing the combination to lack any effect on spore germination or spores. For these reasons, the combination of Tate (with or without copper) as modified by Savage et al. cannot support an obviousness rejection.

- MPEP 2141.02 II states that a "…prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention." The Tate composition includes a copper ion and a chemotactic compound(s) which can include fatty acids, carboxylic acids, and combinations thereof. According to Tate, without the inclusion of a fungicide (the Cu), the chemotactic materials will encourage fungal growth. Although the Savage reference teaches that the combination of a fatty acid and an emulsifier has fungicidal properties (curative), the teaching of Tate thus teaches away from Applicant's combination only requiring a fatty acid, a carboxylic acid and an emulsifier.

(d) The combination of U.S. Patent No. 5,246,716 to Sedum et al. and U.S. Patent No. 5,366,995 to Savage et al. in combination , and further in view of U.S. Patent No. 5,741,502 to Roberts, J.R. is improper and fails to support a prima facie case of obviousness under 35 U.S.C. §103(a)

The Office Action finds applicant's fungicidal composition comprises the following elements: a) a fatty acid; b) an organic carboxylic acid; c) a carrier; and d) an emulsifier. The Office Action further finds that Sedun teaches a fungicide that includes a metal salt of a mono-carboxylic fatty acid, that Savage teaches a fungicide that includes a fatty acid and an emulsifier, and that Roberts teaches an adjuvant for pesticides that can include a carboxylic acid. The Office Action then concludes that one skilled in the

relevant art would have been motivated to combine Roberts and Savage with Sedun to arrive at applicant's fungicidal composition. The Office Action's reasons for making the combination are unclear. It appears that the reason provided for combining Sedun and Savage is that "…if an emulsion form of the composition is desired…, it can be prepared…" (See page 13 of the Office Action). The reason for combining Roberts with Sedun and Savage appears to be related to a perceived need "…to maintain the pH of the fatty acids to below pH 7, or if there is necessary to further reduce the pH of the fatty acids blends to a more desirable acidic pH range…" (See page 13-14 of the Office Action). The Office Action then concludes that applicant's claimed invention would be prima facie obvious for one skilled in the art at the time the invention was made based on the combination of Sedun in view of Savage and Roberts. This conclusion is rebutted by the actual teaching of the cited art as required by MPEP 2143.01 VI; MPEP 2143.01 V; MPEP 2141.02 VI; MPEP 2143.01 III; and MPEP 2143.02.

Sedun teaches the following:

- A composition that includes an "…environmentally compatible, non-phytotoxic anti-fungal composition is provided having an active ingredient which comprises a fatty acid metal salt having from 4 to 18 carbon atoms. The metal salt may be formed from metals including calcium, copper, magnesium, and zinc." (See Sedum, Abstract)
- Sedun's formulation is preventative and provides "…an effective and environmentally safe method of protecting plants from fungicidal infection" (See Sedum, Col. 1, lines 40-42) *Emphasis added.*
- According to Sedun, the "…calcium salts are among the most preferred, especially the calcium salt of octanoic acid ($Ca(C_8)_2$), and the calcium salt of nonanoic acid ($Ca(C_9)_2$)" (See Sedum, Col. 2, lines 45-48).
- Sedun teaches that an "…important advantage of the composition of the invention is that the fungicidal properties of the composition are residual, lasting for as long as two months" (See Sedum Col. 5, lines 56-58) *Emphasis added.*
- According to Sedun, the "…low solubility in water of the fatty acid metal salts also contributes to the low phytotoxicity of the formulation. Low phytotoxicity is essential for the composition as it is applied to plants in

order to kill pathogenic fungi, or to prevent their infestation of the plant. Compositions which are phytotoxic as well as fungicidal are not desirable" (See Sedum Col. 6, lines 5-12) *Emphasis added.*

- According to Sedun:

> The fatty acid metal salt is dispersed in water to form a metal cation and a fatty acid anion. The anion is the agent which is potentially toxic to both fungi and plants. The metal salts of the present invention are much less soluble than are sodium and potassium salts, for example, which are known to be effective herbicidal agents. The nature of the dynamic equilibrium of the fatty acid metal salt in water is such that the anion and the cation concentrations remain constant, provided that there is an excess of the fatty acid metal salt present. An excess of the fatty acid metal salt generally requires a concentration greater than 0.5 g/ml water. The equilibrium concentration of the anion (i.e., about 0.1 to 0.5 g/100 ml of water) is such that it is toxic to fungi but not toxic to the plant. (See Sedum, Col. 6, lines 5-27) *Emphasis added*

Sedun teaches a composition that includes a metal salt of a fatty acid. The composition is protective, having long term residual effect. Sedun obtains fungicidal activity with the essential low phytotoxicity by maintaining low solubility of the metal salt of the fatty acid. Anything that increases solubility of the metal salt increases the concentration of the fatty acid anion, and thus increases the phytotoxicity of the formulation.

The teaching of Savage was noted above (pages 9-10).

Robert's teaches the following:

- According to Roberts, "Some applications require the separate addition of buffering agents to adjust the pH of alkaline waters used to make up the spray solutions. The buffering agents regulate solution pH to avoid hydrolysis of pesticides that tend to decompose in alkaline spray solutions. Generally, the spray's pH should be adjusted to a range of 4 to 6 or slightly acidic. Known buffering agents include alkyl aryl polyethoxy ethanol phosphates and organic phosphatic acids as the principal functioning agents. Typically, such a buffering agent is added to the water which is then combined with the pesticide and any other adjuvants required." (See Roberts, Col. 2, lines 8-19) *Emphasis added*

- "It is the object of this invention to provide an essentially non-aqueous, single-phase adjuvant composition containing oil plus surfactant blend and which provides buffering capability. Even after the addition of alkaline water and pesticides, use of this composition reduces and/or maintains the pH of the spray mixture within a desired range to prevent hydrolysis of the pesticide." (See Roberts, Col. 2, lines 48-54) *Emphasis added*
- "The present invention is a homogeneous, essentially nonaqueous adjuvant composition comprising a spray oil, a surfactant and optionally a buffering agent in an amount to reduce the pH to below about 7**.** It is possible that the oil and/or surfactant component could be used in lieu of the buffering agent if the oil and/or surfactant can reduce the pH of the composition to below about 7. It is also possible that some oils, when coupled into water, could provide buffering on their own. When mixed with a pesticide, the composition provides one-step addition of the adjuvants to obtain a more uniform spread of the spray solution of the herbicide or pesticide, improved penetration and slower evaporation. The adjuvant can also be used as a pesticide or herbicide without the addition of any additional pesticide to the adjuvant. The presence of the buffering agent maintains the pH of the mixture within a desired range pH below about 7 in the presence of alkaline waters typically used in spray solutions." (Col. 2, line 56 to Col. 3, line 6) *Emphasis added*
- Regarding the optional buffering agent, Roberts teaches:

  "…optionally (3) a buffering agent in an amount sufficient to reduce the pH to below about 7. The buffering function could be performed by some of the oil or surfactant components." (See Roberts, Col. 3, lines 50-53) *Emphasis added*
- As noted below by Roberts, when fatty acids are included in a composition, no buffer (or carboxylic acid) is needed;

  "4. Saponified fatty acids or blends thereof:
  Such as, but not limited to saturated and unsaturated soaps of about 6 to about 18 carbon atoms. The saponified fatty acids can be present in an amount from about 1 to about 99%, preferably from about 50 to about 99% and most preferably from about 50 to about 80%. The saponified fatty acids may also be derived from any of the vegetable oils previously mentioned. The saponified fatty acids can be used without a buffering agent when they reduce the pH of the solution to about 7 or below." (See Roberts, Col. 4, lines 28-37) *Emphasis added*

- In summary, Roberts teaches pesticides (including fungicides) that are subject to alkaline hydrolysis will benefit by formulating the pesticide with an adjuvant that can include an optional buffer component to adjust the pH of the pesticide to 7 or below. Examples of buffers include carboxylic acids. The only reason taught for use of a buffer is to protect pesticides sensitive to alkaline hydrolysis. Even when the adjuvant is used with pesticides sensitive to alkaline hydrolysis, Roberts teaches that buffers are not needed if the pH is 7 or below. In other words, the amount of buffer needed to reduce the pH of a formulation to 7 or below is zero, if the formulation has an initial pH of 7 or below.

The proposed combination of Sedun, as modified by Savage and Roberts is improper in view of MPEP 2143.01 VI; MPEP 2143.01 V; MPEP 2141.02 VI; MPEP 2143.01 III; and MPEP 2143.02.

Sedun's formulation was only shown to be effective if present before fungal infection (preventative, lacking curative), [See Sedun's Table 8], whereas Savage's formulation was only effective when applied to an infected plant (curative, lacking preventative). Because the modification proposed by the Office Action, the combination of Savage with Sedun would change the principle of operation of Sedun's formulation, the teachings of Sedun and Savage are not sufficient to render the claims *prima facie* obvious. (See MPEP 2143.01 VI.)

Because addition of a carboxylic acid (from Roberts) to the metal salt of a fatty acid (from Sedun) would cause the salt to dissociate, resulting in increased phytotoxicity to treated plants, the proposed modification would render the Sedun invention unsatisfactory for its intended purpose, demonstrating that there was no suggestion or motivation to make the proposed modification. See MPEP 2143.01 V. Support for the proposition that lowering the pH by adding a carboxylic acid would cause dissociation of the metal salt of the fatty acid can be found in the EPA document directed to the test substance "calcium octoate", available at the website below:

http://www.scribd.com/doc/1621219/Environmental-Protection-Agency-c14172rr16

"…results indicate that dissociation of the test substance will occur at environmentally-relevant pH values (approximately neutral) and at physiologically-relevant pH values (approximately 1.2)." Relevant portions of the document are attached (See page 9 of Attachment A).

Because the Robert's patent teaches the addition of "…a buffering agent in an amount sufficient to reduce the pH to below about 7", a zero amount or no buffer (carboxylic acid) would be indicated for a solution containing a fatty acid, already having a pH of 7 or below. As a result, Roberts teaches away from the combination of Sedun, Savage, and Roberts as suggested by the Office Action. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984), Emphasis added. (See MPEP 2141.02 VI)

The Office Action has provided no meaningful reason for combining Roberts with Sedun and Savage. A general suggestion was made that "One of ordinary skill also would have been motivated to incorporate a buffering agent, i.e. a carboxylic acid, into the adjuvant composition comprises the fatty acids if there is a need to maintain the pH of the fatty acids to below pH, or if there is necessary to further reduce the pH of the fatty acids blends to a more desirable acidic pH range, dependent on the pH, the forms (free acid or metal salt form) and solubility of the selected fatty acid as taught by the prior art Sedun et al., Savage et al. and Roberts, J.R." See pages 13-14 of the 12/10/2009, Office Action. Applicant understands the Office Action to suggest that one of ordinary skill would be motivated to add a buffer or carboxylic acid if there is a need to maintain the pH at 7 or below or if it is desirable to further reduce the pH to a lower pH. Implicit in this reasoning is an assumed, but unexplained need to maintain or reduce the pH of the formulation. Does the Office Action believe that a formulation containing a fatty acid and an emulsifier will be subject to alkaline hydrolysis?

Roberts explicitly states that no buffer (carboxylic acid) is needed if the formulation is already at a pH of 7 or below. Roberts states that the reason for adding a buffer is to prevent hydrolysis of the pesticide. Finally, Roberts states that no buffering agent is needed in conjunction with a formulation containing saponified fatty acids. The Office Action has provided no guidance as to why Robert's instructions should be overruled, what hydrolysis reaction is envisioned for the fatty acid component of the fungicide, making a buffer necessary or desirable. Further Sedun indicates that changes in the formulation that cause dissociation of the metal salt of the fatty acid should be avoided, otherwise the formulation will be toxic to plants. One skilled in the art, having read and understood the Sedun, Savage, and Roberts references, would certainly not consider

adding an acid to the Sedun formulation or a formulation resulting from the combination of Sedun and Savage.

Because one skilled in the art could not have taken the claimed elements and combined them as claimed by known methods with no change in their respective functions, to yield nothing more than predictable results, the cited references can't support an obviousness rejection. Robert's carboxylic acid performs as a buffer, whereas in applicant's formulation, the carboxylic acid unexpectedly enhances the fungicidal activity of the fatty acid in a formulation which according to Roberts doesn't need a buffer (a carboxylic acid). (See MPEP 2143.02.)

(f) Had a prima facie case of obviousness been presented, the showing of an unexpected result overcomes the obviousness rejection

The Office Action concluded that the data provided in Table 13 of Applicant's specification does not demonstrate a showing of unexpected results. Applicant respectfully refutes this conclusion. In applicant's previous Office Action response evidence was provided to demonstrate an unexpected synergistic effect resulting from the combination of a fatty acid, a carboxylic acid different from the fatty acid, and an emulsifier. The Office Action acknowledged the data provided in Tables 4, 5, and 6 shows an unexpected or synergistic effect. However, the Office Action concluded that the data provided in Example 13 and Table 13 failed to demonstrate an unexpected or synergistic effect and only demonstrated an additive effect. The data provided in Table 13, supports the showing of a synergistic effect and does not support the Office Action's conclusion. However, even if the Office Action had been correct, and the data in Table 13 had failed to show a synergistic effect, the showings of Tables 4, 5, and 6 are sufficient for one skilled in the art to see a trend in the data provided.

Looking at the data provided in Table 13, first, only Treatments #'s 2 and 3 utilize a formulation containing both a fatty acid and a carboxylic acid different from the fatty acid. Treatments 1, 4-7 only utilize a fatty acid (Treatment #1), a carboxylic acid (Treatment #'s 4, 5, & 6), or a salt of a carboxylic acid (Treatment #7). Formulation 1 provides results obtained with a test formulation containing only caprylic acid that was tested against two microorganisms. Formulation 2 is derived from formulation 1 with the addition of 0.010% glycolic acid and provides a 10% increased inhibition and a 37% increased inhibition, respectively for the two microorganisms, resulting from the addition of the glycolic acid. A formulation containing 0.010% glycolic acid produced 0% and 0% inhibition for the two microorganisms (See Formulation 6). Were the results additive, as indicated, Treatment 2 should have provided 88%

(88% + 0) and 34% (34% and 0) inhibitions, rather than 98% and 71%. Looking at the results obtained for Treatments 3 and 7; we again see a synergistic effect, rather than an additive effect. Had the results been additive, Treatment 3 should have provided 88% (88% + 0) and 41% (34% + 7%), instead of 99% and 93%.

Table 13

	Treatment*	Inhibition (%) of *Botrytis cinerea*	Inhibition (%) of white mold
1	0.014% caprylic acid	88	34
2	0.014 caprylic acid + 0.010% glycolic acid	98	71
3	0.014% caprylic acid + 0.010% diethylamine salicylate	99	93
4	0.010% citric acid	0	0
5	0.010% succinic acid	0	0
6	0.010% glycolic acid	0	0
7	0.010% diethylamine salicylate	0	7

In addition, even if applicant's data contained only a single example of an unexpected result, rather than the several examples provided, that single example would be sufficient to overcome a rebut a prima facie case of obviousness if one skilled in the art could see a trend in the data provided that would allow him to reasonably ascertain the data's probative value. See MPEP 2145 and *In re Clemens,* 622 F.2d 1029, 1036, 206 USPQ 289, 296 (CCPA 1980).

Further, according to *In re Soni*:

> One way for a patent applicant to rebut a *prima facie* case of obviousness is to make a showing of "unexpected results," i.e., to show that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected. The basic principle behind this rule is straightforward – that which would have been surprising to a person of ordinary skill in a particular art would not have been obvious. The principle applies most often to the less predictable fields, such as chemistry, where minor changes in a product or process may yield substantially different results.

Further according to MPEP 2145, 3rd paragraph:

> Rebuttal evidence may include evidence of "secondary considerations," such as "**commercial success, long felt but unsolved needs**, [and] failure of others." *Graham v. John Deer Co.,* 383 U.S. at 17, 148 USPQ at 467. See also, e.g., *In re Piasecke,* 745 F.2d 1468, 1473, 223 USPQ 785, 788 (Fed. Cir. 1984) (commercial success). ***Rebuttal evidence may also include evidence that the claimed invention yields unexpectedly improved properties or properties not present in the prior art. Rebuttal evidence may consist of a showing that the claimed compound possesses unexpected properties.*** *Dillon*, 919 F.2d at 692-93, 16 USPQ2d at 1901… (Emphasis Added)

Please see paragraphs 4 and 5 of Applicant's specification for a description of a long felt and unsolved need for safer and natural fungicides to replace the more toxic materials derived from petroleum products and paragraphs 9 through 13 of Applicant's specification for a detailed description of Applicant's resolution of these long felt and unsolved needs .

The test results cited clearly show that a formulation containing a fatty acid and a second carboxylic acid (or its salt) that is not a fatty acid along with a carrier and at least one emulsifier provides unexpected superior fungicidal properties when applied to infected plants compared to a formulation containing only a fatty acid or compared to a formulation containing only a carboxylic acid that is not a fatty acid. As a result, according to the teaching of *In re Soni*, and according to MPEP 2143, 3rd paragraph, claims 1-6, 10-12 and 15-25 are not obvious in view of the prior art cited in the Office Action. In the interest of facilitating prosecution of this application, Claim 1 has been amended to include the functional language, suggested by the Examiners, related to Applicant's observed synergistic effect.

It should be understood that the above remarks are not intended to provide an exhaustive basis for patentability or concede the basis for the rejections in the Office Action, but are simply provided to overcome the rejections made in the Office Action in the most expedient fashion.

Claims 1-6, 10-12 and 15-25 are currently pending in this application and have been rejected for the reasons discussed above. In view of the above remarks, it is submitted that the present application is now in condition for allowance. The Examiner is requested to allow claims 1-6, 10-12, and 15-25 and pass the case to issue. If the Examiner should have any comments or suggestions to help speed the prosecution of this application, the Examiner is requested to contact the undersigned representative by telephone.

Respectfully submitted,

By /Edward E. Sowers/

Edward E. Sowers, Reg. No. 36015
Brannon and Sowers, P.C.
1 North Pennsylvania Street
Indianapolis, Indiana 46204
(317) 630-2816